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- (1) GENERAL INFORMATION:
- (i) APPLICANTS: Jiandong Chen
 Sudhir Agrawal
 Ruiwen Zhang
 - (ii) TITLE OF INVENTION: MDM2-SPECIFIC ANTISENSE OLIGONUCLEOTIDES
 - (iii) NUMBER OF SEQUENCES: 49
 - (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: McDonnell Boehnen Hulbert & Berghoff
 - (B) STREET: 300 South Wacker Drive, 32nd Floor
 - (C) CITY: Chicago
 - (D) STATE: IL
 - (E) COUNTRY: United States of America
 - (F) ZIP: 60606
- (v) COMPUTER READABLE TOPM:
 - (A) MEDIUM TYPE: Floop disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: Microsoft Word 97
 - (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: US
 - (B) FILING DATE:
 - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
- (A) NAME: Greenfield, Michael
- (B) REGISTRATION NUMBER: 37,147
- (C) REFERENCE/DOCKET NUMBER: 98,\057-A
- (ix) TELECOMMUNICATION INFORMATION:
- (A) TELEPHONE: (312) 913-0001
- (B) TELEFAX: (312) 913-0002
- (2) INFORMATION FOR SEQ ID NO:1:
- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2372 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: hmdm2 DNA
 - (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1

GCACCGCGCG VAGCTTGGCTG CTTCTGGGGC CTGTGTGGCC CTGTGTGTCG GAAAGATGGA GCAAGAAGCC OAGCCCGAGG GGCGGCCGCG ACCCCTCTGA CCGAGATCCT GCTGCTTTCG 120 CAGCCAGGAG CACCGTCCCT CCCCGGATTA GTGCGTACGA GCGCCCAGTG CCCTGGCCCG 180 GAGAGTGGAA TGAYCCCCGA GGCCCAGGGC GTCGTGCTTC CGCAGTAGTC AGTCCCCGTG AAGGAAACTG GGGAGTCTTG AGGGACCCCC GACTCCAAGC GCGAAAACCC CGGATGGTGA GGAGCAGGCA AATGTGCAAT ACCAACATGT CTGTACCTAC TGATGGTGCT GTAACCACCT CACAGATTCC AGCTTCGGAA CAAGAGACCC TGGTTAGACC AAAGCCATTG CTTTTGAAGT TATTAAAGTC TGTTGGT&CA CAAAAAGACA CTTATACTAT GAAAGAGGTT CTTTTTTATC 480 TTGGCCAGTA TATTATGAÇT AAACGATTAT ATGATGAGAA GCAACAACAT ATTGTATATT 540 GTTCAAATGA TCTTCTAGGA GATTTGTTTG GCGTGCCAAG CTTCTCTGTG AAAGAGCACA 600 GGAAAATATA TACCATGATC TACAGGAACT TGGTAGTAGT CAATCAGCAG GAATCATCGG 660 ACTCAGGTAC ATCTGTGAGT GAGAACAGGT GTCACCTTGA AGGTGGGAGT GATCAAAAGG ACCTTGTACA AGAGCTTCAG GAAGAGAAAC CTTCATCTTC ACATTTGGTT TCTAGACCAT CTACCTCATC TAGAAGGAGA GAATTAGTG AGACAGAAGA AAATTCAGAT GAATTATCTG 840 GTGAACGACA AAGAAAACGC CAXXAATCTG ATAGTATTTC CCTTTCCTTT GATGAAAGCC TGGCTCTGTG TGTAATAAGG GAGATATGTT GTGAAAGAAG CAGTAGCAGT GAATCTACAG 960 GGACGCCATC GAATCCGGAT CTICATGCTG GTGTAAGTGA ACATTCAGGT GATTGGTTGG 1020 ATCAGGATTC AGTTTCAGAT CAGTTTAGTG TAGAATTTGA AGTTGAATCT CTCGACTCAG 1080 AAGATTATAG CCTTAGTGAA GAAGGAQAAG AACTCTCAGA TGAAGATGAT GAGGTATATC 1140 AAGTTACTGT GTATCAGGCA GGGGAGAGTG ATACAGATTC ATTTGAAGAA GATCCTGAAA 1200 TTTCCTTAGC TGACTATTGG AAATGCACYT CATGCAATGA AATGAATCCC CCCCTTCCAT 1260 CACATTGCAA CAGATGTTGG GCCCTTCGTG AGAATTGGCT TCCTGAAGAT AAAGGGAAAG 1320 ATAAAGGGGA AATCTCTGAG AAAGCCAAAC\TGGAAAACTC AACACAAGCT GAAGAGGGCT 1380 TTGATGTTCC TGATTGTAAA AAAACTATAG \GAATGATTC CAGAGAGTCA TGTGTTGAGG 1440 AAAATGATGA TAAAATTACA CAAGCTTCAC AATCACAAGA AAGTGAAGAC TATTCTCAGC 1500 CATCAACTTC TAGTAGCATT ATTTATAGCA GCCAAGAAGA TGTGAAAGAG TTTGAAAGGG 1560 AAGAAACCCA AGACAAAGAA GAGAGTGTGG AATCTAGTTT GCCCCTTAAT GCCATTGAAC 1620 CTTGTGTGAT TTGTCAAGGT CGACCTAAAA ATGGYTGCAT TGTCCATGGC AAAACAGGAC 1680 ATCTTATGGC CTGCTTTACA TGTGCAAAGA AGCTANAGAA AAGGAATAAG CCCTGCCCAG 1740 TATGTAGACA ACCAATTCAA ATGATTGTGC TAACTTATTT CCCCTAGTTG ACCTGTCTAT 1800 AAGAGAATTA TATATTTCTA ACTATATAAC CCTAGGAATT TAGACAACCT GAAATTTATT 1860 CACATATATC AAAGTGAGAA AATGCCTCAA TTCACATAĞA TTTCTTCTCT TTAGTATAAT 1920 TGACCTACTT TGGTAGTGGA ATAGTGAATA CTTACTATAÀ TTTGACTTGA ATATGTAGCT 1980 CATCCTTTAC ACCAACTCCT AATTTTAAAT AATTTCTACT CTGTCTTAAA TGAGAAGTAC 2040 TTGGTTTTTT TTTTCTTAAA TATGTATATG ACATTTAAAT &TAACTTATT ATTTTTTTTG 2100 AGACCGAGTC TTGCTCTGTT ACCCAGGCTG GAGTGCAGTG GGTGATCTTG GCTCACTGCA 2160 AGCTCTGCCC TCCCCGGGTT CGCACCATTC TCCTGCCTCA GCQTCCCAAT TAGCTTGGCC 2220 TACAGTCATC TGCCACCACA CCTGGCTAAT TTTTTGTACT TTTAGTAGAG ACAGGGTTTC 2280 ACCGTGTTAG CCAGGATGGT CTCGATCTCC TGACCTCGTG ATCCGCCCAC CTCGGCCTCC 2340 CAAAGTGCTG GGATTACAGG CATGAGCCAC CG

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid

(C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii)\HYPOTHETICAL: NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2	
TTGGCCAGTA TATTATGACT	20
(2) INFORMATION FOR SEQ ID NO:3:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(ii) MOLECULE TYPE nucleic acid	
(iii) HYPOTHETICAL; NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3	
CCTTGAAGGT GGGAGTGATC	20
(2) INFORMATION FOR SEQ ID NO:4:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid $igg angle$	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4	
TGGATCAGGA TTCAGTTTCA	20

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(2) INFORMATION FOR SEQ ID NO:5: 气) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C)\STRANDEDNESS: both (D) TOPOLOGY: linear (ii) MOLECULE TYPE: nucleic acid (iii) HYPOTHETICAL: NO (iv) ANTI-SENSE: NO (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5 GATGACTCAC ACCATCAT&G 20 ų. (2) INFORMATION FOR SEX 10 NO:6: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pains (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ii) MOLECULE TYPE: nucleic acid (iii) HYPOTHETICAL: NO (iv) ANTI-SENSE: NO (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6 CAGAGCCTTC ATCTTCCCAG 20 (2) INFORMATION FOR SEQ ID NO:7: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ii) MOLECULE TYPE: nucleic acid (iii) HYPOTHETICAL: NO (iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7

(2) INFORMATION FOR SEQ ID NO:8:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID	NO:8
CCAGCTTCGG AACAAGAGAC	20
(2) INFORMATION FOR SEQ ID NO:9:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID	NO:9
TCTACCTCAT CTAGAAGGAG	20
(2) INFORMATION FOR SEQ ID NO:10:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs	

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: nucleic acid

GGCCCCGT CAGCCGTC ACCGCGCT AGGGTGCT AACCATTG AAGAGATT	60 120 180 240 300 360 420 480
<i>I I I I</i>	CAGCCGTC ACCGCGCT AGGGTGCT AACCATTG

GACTCTGGCA CATCGCTGAG TGAGAGCAGA CGTCAGCCTG AAGGTGGGAG TGATCTGAAG GATCCTTTGC AAGCGCCACC AGAAGAGAAA CCTTCATCTT CTGATTTAAT TTCTAGACTG 660 TCTACCTCAT CTAGAAGGAG ATCCATTAGT GAGACAGAAG AGAACACAGA TGAGCTACCT 720 GGGGAGCGC ACCGGAAGCG CCGCAGGTCC CTGTCCTTTG ATCCGAGCCT GGGTCTGTGT GAGCTGAGGG AGATGTGCAG CGGCGGCACG AGCAGCAGTA GCAGCAGCAG CAGCGAGTCC 840 ACAGAGACGC CCTCGCATCA GGATCTTGAC GATGGCGTAA GTGAGCATTC TGGTGATTGC CTGGATCAGG ATTCAGTTTC TGATCAGTTT AGCGTGGAAT TTGAAGTTGA GTCTCTGGAC TCGGAAGATT ACAGCCTGAG TGACGAAGGG CACGAGCTCT CAGATGAGGA TGATGAGGTC 1020 TATCGGGTCA CAGTCTATCA GACAGGAGAA AGCGATACAG ACTCTTTTGA AGGAGATCCT 1080 CCATCACACT GCAAAAGATG CTGGACCCTT CGTGAGAACT GGCTTCCAGA CGATAAGGGG 1200 AAAGATAAAG TGGAAATCTC TGAAAAAGCC AAACTGGAAA ACTCAGCTCA GGCAGAAGAA 1260 GGCTTGGATG TGCCTGATGG CAAAAAGCTG ACAGAGAATG ATGCTAAAGA GCCATGTGCT 1320 GAGGAGGACA GCGAGGAGAA GGCCGAACAG ACGCCCCTGT CCCAGGAGAG TGACGACTAT 1380 TCCCAACCAT CGACTTCCAG CAGCATTGTT TATAGCAGCC AAGAAAGCGT GAAAGAGTTG 1440 AAGGAGGAAA CGCAGCACAA AGACGAGAGT GTGGAATCTA GCTTCTCCCT GAATGCCATC 1500 GAACCATGTG TGATCTGCCA GGGGCGGCCT AAAAATGGCT GCATTGTTCA CGGCAAGACT 1560 GGACACCTCA TGTCATGTTT CACGTGTGCA AAGAAGCTAA AAAAAAGAAA CAAGCCCTGC 1620 CCAGTGTGCA GACAGCCAAT CCAAATGATT GTGCTAAGTT ACTTCAACTA GCTGACCTGC 1680 TCACAAAAAT AGAATTTTAT ATTTCTAACT 1710

- (2) INFORMATION FOR SEQ ID NO:13:
- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: nucleic acid
 - (iii) HYPOTHETICAL: NO
 - (iv) ANTI-SENSE: NO
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13

ACATCTGTGA GTGAGAACAG

20

- (2) INFORMATION FOR SEQ ID NO:14:
- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: nucleic acid
 - (iii) HYPOTHETICAL: NO
 - (iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO	:14
GTGAGTGAGA ACAGGTGTCA	20
 (2) INFORMATION FOR SEQ ID NO:15: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO	:15
TGAGAACAGG TGTCACCTTG	20
 (2) INFORMATION FOR SEQ ID NO:16: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: NO	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO	:16
ACAGGTGTCA CCTTGAAGGT	20
 (2) INFORMATION FOR SEQ ID NO:17: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	

(ii) MOLECULE TYPE: nucleic acid

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17
TGGGAGTGAT CAAAAGGACC 20
 (2) INFORMATION FOR SEQ ID NO:18: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18
GTGATCAAAA GGACCTTGTA 20
 (2) INFORMATION FOR SEQ ID NO:19: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19
AAGGACCTTG TACAAGAGCT 20
 (2) INFORMATION FOR SEQ ID NO:20: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: nucleic acid

(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20
TGAACATTCA GGTGATTGGT 20
 (2) INFORMATION FOR SEQ ID NO:21: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21
ATTCAGGTGA TTGGTTGGAT 20
 (2) INFORMATION FOR SEQ ID NO:22: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 21 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22
AGGTGATTGG TTGGATCAGG A 21
(2) INFORMATION FOR SEQ ID NO:23: (i) SEQUENCE CHARACTERISTICS:

- - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid

 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23
ATTCAGTTTC AGATCAGTTT 20
(2) INFORMATION FOR SEQ ID NO:24: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24
GATCAGTTTA GTGTAGAATT 20
 (2) INFORMATION FOR SEQ ID NO:25: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25
TGACACTTGT TCTTACTCAC 20
(2) INFORMATION FOR SEC ID NO.26.

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid

<pre>(C) STRANDEDNESS: both (D) TOPOLOGY: linear</pre>
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26
TGACTCTTGT CCTTACTCAC 20
(2) INFORMATION FOR SEQ ID NO:27:
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27
AGTCATAATA TACTGGCCAA 20
(2) INFORMATION FOR SEQ ID NO:28:
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28
GATCACTCCC ACCTTCAAGG 20
(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29
TGAAACTGAA TCCTGATCCA 20
(2) INFORMATION FOR SEQ ID NO:30:
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30
GAAGCTGGAA TCTGTGAGGT 20
(2) INFORMATION FOR SEQ ID NO:31:
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31

GTCTCTTGTT CCGAAGCTGG	20
(2) INFORMATION FOR SEQ ID NO:32:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: YES	
(xi) SEQUENCE DESCRIPTION: SEQ ID	NO:32
CTCCTTCTAG ATGAGGTAGA	20
(2) INFORMATION FOR SEQ ID NO:33:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: YES	
(xi) SEQUENCE DESCRIPTION: SEQ ID	NO:33
TTCCAATAGT CAGCTAAGGA	20
(2) INFORMATION FOR SEQ ID NO:34: (i) SEQUENCE CHARACTERISTICS:	

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: nucleic acid
- (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34
GGATTCATTT CATTGCATGA 20
 (2) INFORMATION FOR SEQ ID NO:35: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35
CTGTTCTCAC TCACAGATGT 20
 (2) INFORMATION FOR SEQ ID NO:36: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36
TGACACCTGT TCTCACTCAC 20
 (2) INFORMATION FOR SEQ ID NO:37: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid

(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37
CAAGGTGACA CCTGTTCTCA 20
 (2) INFORMATION FOR SEQ ID NO:38: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38
ACCTTCAAGG TGACACCTGT 20
 (2) INFORMATION FOR SEQ ID NO:39: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39
GGTCCTTTTG ATCACTCCCA 20
 (2) INFORMATION FOR SEQ ID NO:40: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40
TACAAGGTCC TTTTGATCAC 20
 (2) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41
AGCTCTTGTA CAAGGTCCTT 20
 (2) INFORMATION FOR SEQ ID NO:42: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42
ACCAATCACC TGAATGTTCA 20
 (2) INFORMATION FOR SEQ ID NO:43: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETTCAL: NO

(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43
ATCCAACCAA TCACCTGAAT 20
 (2) INFORMATION FOR SEQ ID NO:44: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 21 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44
TCCTGATCCA ACCAATCACC T 21
 (2) INFORMATION FOR SEQ ID NO:45: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: YES
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45
AAACTGATCT GAAACTGAAT 20
 (2) INFORMATION FOR SEQ ID NO:46: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: nucleic acid
(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: YES	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46	
AATTCTACAC TAAACTGATC 20	
(2) INFORMATION FOR SEQ ID NO:47:(i) SEQUENCE CHARACTERISTICS:	
(A) LENGTH: 20 base pairs (B) TYPE: nucleic acid	
(C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: YES	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47	
UGACACCTGT TCTCACUCAC 20	
(2) INFORMATION FOR SEQ ID NO:48: (i) SEQUENCE CHARACTERISTICS:	
(A) LENGTH: 20 base pairs	
(B) TYPE: nucleic acid (C) STRANDEDNESS: both	
(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: nucleic acid	
(iii) HYPOTHETICAL: NO	
(iv) ANTI-SENSE: YES	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48	
UGAGACCAGT TGTCAGUCAC	20
(2) INFORMATION FOR SEQ ID NO:49: (i) SEQUENCE CHARACTERISTICS:	
(A) LENGTH: 73 base pairs	
(B) TYPE: nucleic acid (C) STRANDEDNESS: both	
(D) TOPOLOGY: linear	

(ii) MOLECULE TYPE: nucleic acid





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(iv) ANTI-SENSE:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49

AAGCTCTTGT ACAAGGTCCT TTTGATCACT CCCACCTTCA AGGTGACACC TGTTCTCACT CACAGATGTA CCT 60

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